

Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

MECHANICS.

No. I.

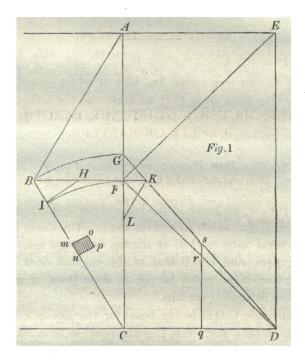
DIAGRAMS FOR FINDING THE LENGTH AND BEVELS OF RAFTERS.

The SILVER ISIS MEDAL was presented to Mr. JOSEPH JEAY, 6 Oxford Market, for his Method of finding the Length and Bevels of the various Timbers in a Hip-roof.

In works on practical carpentry, of which that by the late Mr. Nicholson is, perhaps, one of the best, are methods of computing the length and bevels of rafters. But these methods are complex, require many lines in the diagrams, and do not directly give the dimensions of the jack-rafter. Mr. Jeay's method is strictly geometrical, requires few lines, and also gives the length of the jack-rafter. On these accounts, the Society have thought proper to reward the ingenious inventor, and to render public a method more convenient, and more largely applicable than those in common use.

The candidate stated to the Committee, that he has applied his method in the construction of the roof of the Lunatic Asylum at Leicester, and at Bitterswell Hall, near Lutterworth, where he was professionally employed.

Let A E D C, fig. 1, represent the wall-plates of a building; A B C a vertical and transverse section of the roof, A B and B C being the common rafters. The dotted lines E F, D F, the seats of the hips; and the line



 $q\,r$ the seat of a jack-rafter. BK a line from the ridge at right angles to the line AC; and $m\,n\,o\,p$ a section of the purlin placed in its real position with respect to the common rafter.

Then, with C as a centre and radius CB cross the line AC in G, and with the same centre and radius CF cross the line CB in J; join the points D and G, and from the point J draw the line GH perpendicular to CB,

meeting B K in H; set off the distance J H along the line A C from F to L, and join the points K and L, and produce the line q r to s.

This being done, the lengths and bevels are as follows:—

LENGTHS OF TIMBERS.

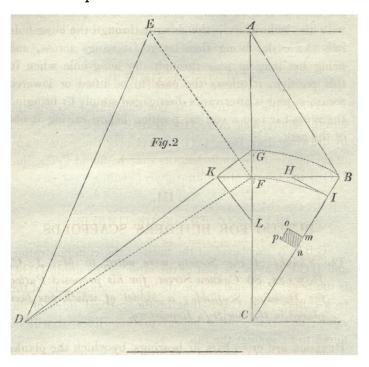
BC is the length of the common rafter; qs is the length of the jack-rafter, the seat of which is qr; and by drawing lines from CD to DG over the seats of any of the jack-rafters, their lengths may be found. The line DG is the length of the hip-rafter.

BEVELS OF THE ROOF TIMBERS.

CBF is the bevel of the head of the common rafter, and BCF that of the foot of the same. The angle DGC is the bevel to be marked on the top or bottom side of the jack-rafters, and CBF that of the vertical sides of the same; and if the rafter be cut to these lines, it will be found to fit against the hip.

The angle CDG is the bevel for the side mn of the purlin, and the angle BKL is the bevel to be marked on the side mo; and if the purlin be cut to these lines, it will be found, when placed in its proper position, exactly to fit against the side of the hip-rafter.

Fig. 2 shews the application of the above to a building with an oblique end.



No. II.

RAISING EMPTY CASKS.

The Thanks of the Society were voted to Mr. J. C. Bowles, 80 Cannon Street, for his Apparatus for Raising Empty Casks, one of which has been placed in the Society's Repository.

MR. Bowles's apparatus consists of a link attached to the end of the lifting rope, and terminating below in a